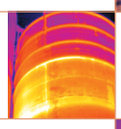
ThermaCAM™ E320

Unparalleled image quality: 320 x 240 pixels

- Extremely high thermal sensitivity
- Unparalleled image quality (320 x 240 pixels)
- Useable in all weather conditions (IP54)
- Radiometric JPEG image storage (more than 80 images)
- In-field text annotation
- A wide range of accessories and lenses
- Compatible with ThermaCAM™ Reporter™ software
- ThermaCAM QuickView™ included

Full-featured infrared camera producing ultra-sharp images



AFFORDABLE IMAGING, MEASUREMENT, STORAGE AND ANALYSIS IN THE PALM OF YOUR HAND

In cooperation with its customers, FLIR Systems, the world leader for infrared thermography, has further developed its successful ThermaCAM™ E-series range.

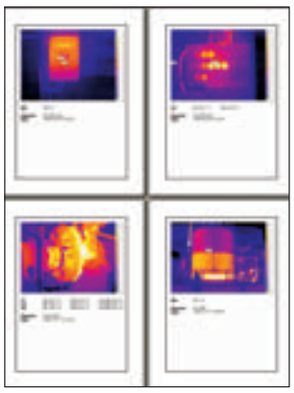
The result is the ThermaCAM E320. From now on you can see even sharper infrared images (320 x 240 pixels) on the high-resolution LCD display. Fitting in the palm of your hand, the ThermaCAM E320 offers non-contact temperature measurement, crisp thermal imaging, in-field image analysis and storage and both qualitative and quantitative post-analysis and reporting.

The ThermaCAM E320 is the only camera that offers you practically all the possibilities of a high range infrared camera at an affordable price.

ThermaCAM™ E320
A unique infrared tool

- High-resolution infrared images (320 x 240 pixels)
- Ultra compact
- Extremely light: 800 grams battery included
- Maintenance free uncooled microbolometer detector
- Non-contact precision temperature measurement
- High thermal sensitivity: 0.08°C
- Temperature range:
  -20°C up to +500°C (in 2 ranges)
  optional: +250°C up to +1,200°C
  (with external filter, 25° lens only)
- Up to 4 x digital zoom
- Audible alarm
- Auto hot-spot
- In-field text annotation
- Stores more than 80 images in radiometric JPEG format
- Useable indoor and outdoor
  in all weather conditions (IP54)
- Built-in laserpointer
- Software for detailed post-analysis and
  reporting available

Extraordinary image quality 320 x 240 pixels !



ThermaCAM™QuickView™: basic reporting software included:

The ThermaCAM E320 comes with the ThermaCAM QuickView software included. This allows you to do basic post-analysis of your captured IR images and to make simple reports in a PDF-format. Microsoft Word® based ThermaCAM Reporter™ software is optionally available.

Easy operation

At the touch of a button you can easily change color palettes, emissivity settings, temperature ranges and other analysis tools. Built-in menu systems provide easy access to advanced, yet simple to use software.

Flexible standard JPEG image storage

The camera stores more than 80 infrared images in standard, low density JPEG format, giving you instant visibility of the images stored in the field.

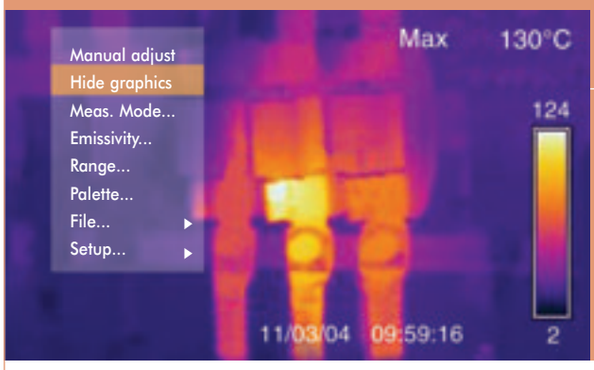
Since all images are in JPEG format you can easily share them with your colleagues. There is no need to use special viewing software. All images can easily be imported in the optional available ThermaCAM Reporter software for further detailed analysis.

Extraordinary image quality - Precision temperature measurement

The E320 makes high-resolution thermal images of 320 x 240 pixels. A quality which is four times better than 160 x 120 pixels.

The E320 delivers unmatched temperature measurement accuracy and has a thermal sensitivity of 0.08°C.

A low thermal sensitivity not only offers you the possibility to see the smallest of temperature changes, it also means that you get a clear, noise-free, excellent quality image which cannot be obtained by less sensitive cameras. Thanks to these very detailed images, which are displayed on the camera's 2.5" color LCD, you will clearly see the smallest temperature changes.



Locate and analyze problems fast

Analyze problems and share results with your colleagues in the field. Movable crosshairs allow you to measure and analyze the temperature at a single point. Find the hottest spot in a defined area, highlight areas of concern with color or sound alarms. The ThermaCAM E320 has all the analysis tools you need to make instant decisions in the field.

Smart power management

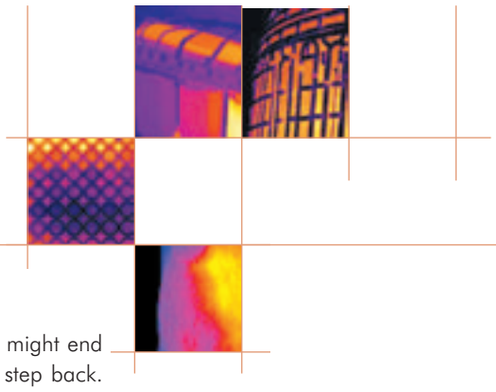
No need to worry about batteries dying and losing valuable inspection time. The lightweight, long-life Li-Ion battery ensures uninterrupted inspections. It runs up to 2 hours and the ThermaCAM™ E320 features an internal battery charger. A 2-battery charging system is also included. It features a car/truck charger adapter so that you can charge to camera on the way to your next job.

Rugged, ergonomic and lightweight: useable in all weather conditions

Dust- and splashproof, the E320 meets IP54 standards and withstands harsh industrial environments. It can be used both indoors and outdoors in the most diverse weather conditions. Hold the ThermaCAM E320 in your hand. Clip it to your belt or put it in your toolbox. With a weight of less than 800 grams, the E320 is ready to be used for several hours per day.

Easier and quicker inspections thanks to powerful and useful features

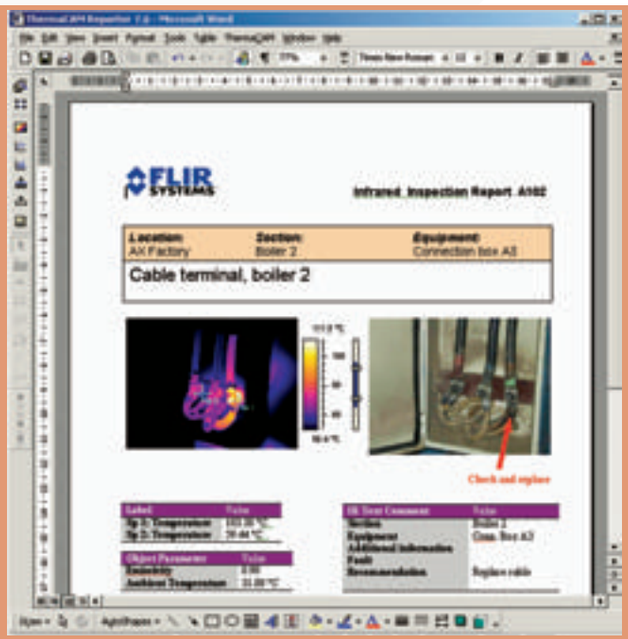
- Sound and color alarms: the operator can set a maximum temperature in the camera. If the E320 is pointed to an object and this temperature is exceeded, the camera will produce an audible and/or a visible alarm.
- Movable crosshair: a joystick allows moving the crosshairs for temperature measurement on any pixel in the IR image. A considerable advantage over having just one fixed spot in the middle.
- Automatic cold or hot spot: the ThermaCAM E320 automatically detects the coldest or the hottest spot in the infrared image.
- Full temperature measurement and analysis capabilities: on both live and saved images.
- Temperature differential measurement: calculates temperature differences between 2 measurement spots, directly in the field.
- In-field text annotations: stores basic text comments together with the infrared image.
- Incorporated emissivity tables: pre-defined values for often inspected materials can be stored in the camera.
- Laser LocatIR™: helps to associate the hot spot on the IR image with the real physical target and enhances user safety.



Adaptable to every situation - a wide range of accessories

When doing predictive maintenance inspections, you might end up in situations where you do not have the room to step back. A wide angle lens is then the perfect solution. When you are looking at objects which are a distance away you can use a tele-photo lens. Interchangeable optics offer the thermographer the flexibility needed to adapt his camera to the most demanding applications.

To ensure perfect images on the LCD display in direct sunlight a sunshield is available.

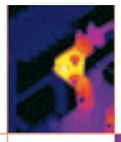


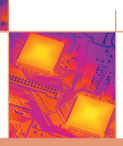
Post analysis and automated report generation in a familiar environment

Full radiometric images captured by the ThermaCAM E320, can easily be downloaded and integrated in the optional ThermaCAM Reporter™ software.

ThermaCAM Reporter allows you to create all your reports in a familiar software environment. From now on, you can not only make your own templates for infrared inspection reports in Microsoft Word, but you can also analyse your infrared images within the same program. An extra toolbar appearing on your screen gives you instant access to specific functions for detailed analysis. Setting temperature spots, creating histograms and line profiles, changing emissivity settings,... are just a few of the tools that can be accessed by a simple mouse-click.

Since all your images are in JPEG format and all your reports in Word format, you can easily share them with your colleagues. Anyone can open and read your files. No need for special viewing software.





INFRARED CAMERAS:

- Perform inspections when systems are under load
- See the heat produced
- Are contactless
- Identify and locate the problem
- Measure the temperature
- Store the information
- Give you the answers you need to understand what needs to be fixed
- Find the problems before they actually occur
- Save you valuable time and money

WHY USE INFRARED ?

Nearly everything that uses or transmits power gets hot before it fails. Cost effective power management is critical to maintaining the reliability of your electrical and mechanical systems. Infrared thermography is an effective predictive maintenance (PM) technology to quickly, accurately and safely locate problems prior to failure. Whether viewing electrical components indoors or outdoors, doing mechanical inspections, inspecting process installations, ThermaCAM™ E320 can instantly locate hot spots prior to failure. Inspections can be safely performed while electrical systems are under load. Common electrical targets are: switchgear, breakers, fuses, electrical panels, and bolted connections.

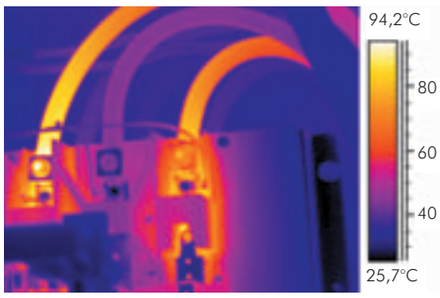
RETURN ON INVESTMENT

Infrared cameras have proven to be an invaluable resource for predictive maintenance. They can locate problems well in advance of failure resulting in rapid payback on investment and avoiding costly plant shutdowns. The ThermaCAM E320 not only locates problems quickly, its non-contact precision temperature measurement capabilities deliver the answers you need to decide what repair action to take, and when.

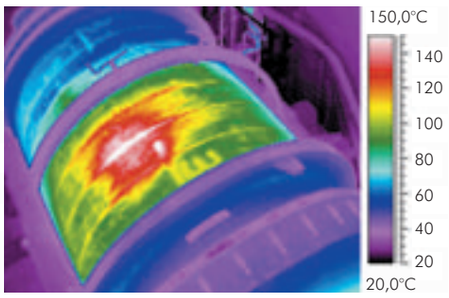
Regular surveys of a steel mill's substations potentially save tens of thousands of euros per year. A major steel company discovered a significant temperature rise in one of their 69 kV breakers. If this problem had gone undetected it could have cost the company 50,000 euros per hour in lost time due to shutdown of the casters. Total loss of power to a mill is estimated to be over 250,000 euros an hour.

At a public electric utility company, a routine thermographic survey indicated one of the output filter capacitors of a station battery charger was considerably cooler then the others. As a result, the capacitor in question was tested and found to have failed. Replacement of the failing capacitor avoided an outage, saving an estimated 500,000 euros.

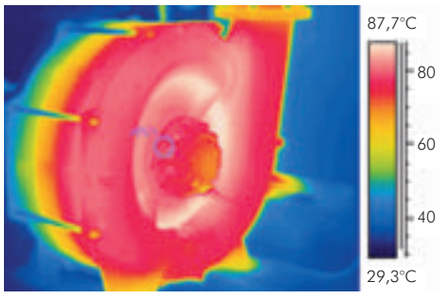
See what infrared can do for you today



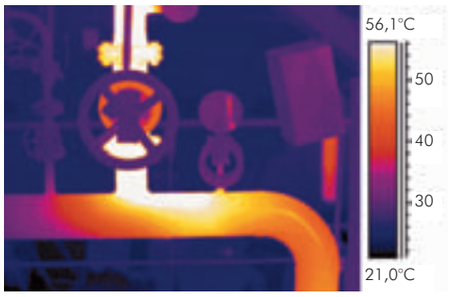
See loose connections



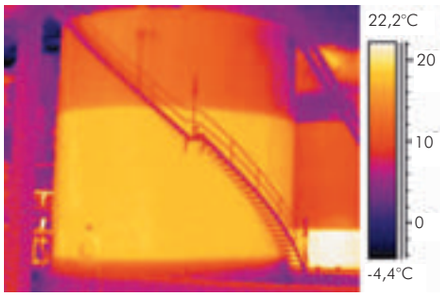
Hot spot in oven



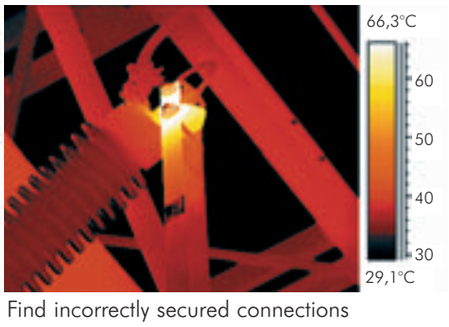
Overloaded pump



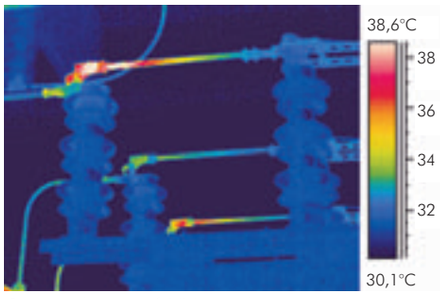
Steam trap



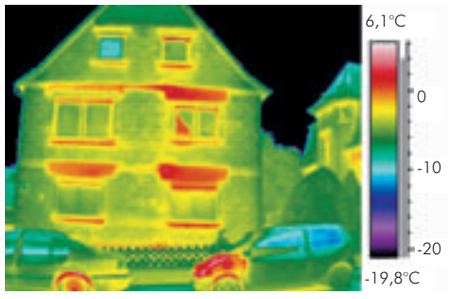
Level detection in tanks



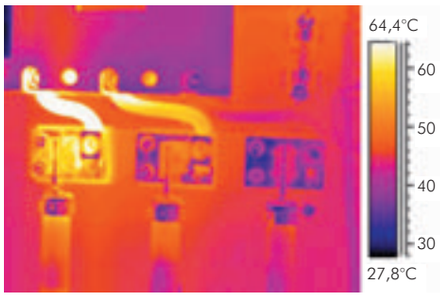
Find incorrectly secured connections



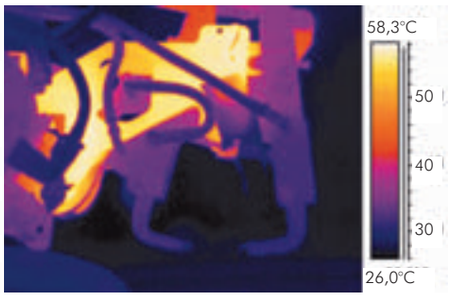
See oxidation of HV switches



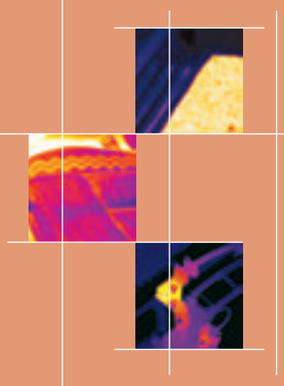
Hot spots due to bad insulation



Measure fuses



Hot spot in welding robot



TECHNICAL SPECIFICATIONS

IMAGING PERFORMANCE	
Field of view/min focus distance	25° X 19°/0.3 m
Thermal sensitivity	0.08°C at 30°C
Image frequency	25/30 Hz non-interlaced
Focus	Manual
Detector type	Focal Plane Array (FPA), uncooled microbolometer
	320 x 240 pixels ← EXTRAORDINARY IMAGE QUALITY
Digital Zoom	1 x, 2 x or 4 x
Spectral range	7.5 to 13 µm
IMAGE PRESENTATION	
Video output	PAL or NTSC, standard RCA composite video
External display	2.5" color LCD, 16K colors
MEASUREMENT	
Temperature range	-20°C to +500°C (in 2 ranges)
	optional: +250°C up to +1,200°C (with external filter, 25° lens only)
Accuracy	±2°C, ±2%
Repeatability	±1°C, ±1%
Measurement mode	3 movable spots, area max, area min, area average, temp. difference
	color and/or sound alarm above or below, auto hot-spot
Menu controls	Palettes (iron, rainbow, rainbow HC, B&W, B&W inverse),
	auto-adjust (continuous/manual)
Set-up controls	Date/time, temperature units °C/°F, language,
	scale, info field, LCD intensity (high/normal/low)
Measurement corrections	Emissivity variable from 0.1 to 1.0, reflected ambient
IMAGE STORAGE	
Type	Built-in FLASH memory (> 80 images)
File formats	Standard JPEG
Text annotation of images	Predefined text selected and stored together with the image
LENSES (OPTIONAL)	
2 x Telescope	15° x 11°/0.5 m
0.5 Wide angle	45° x 36°/0.2 m
	adapt your camera to EVERY situation
LASER LOCATIR™	
Classification	Class 2
Type	Semiconductor AlGaInP Diode Laser:
	1mW/635 nm red
BATTERY SYSTEM	
Type	Li-Ion, rechargeable, field replaceable
Operating time	2 hours continuous operation. Display shows battery status
Charging system	In camera, AC adapter or 12 V from car (with optional Std. cable)
	2 bay intelligent charger, 12 V
AC operation	AC adapter 90-260 V AC, 50/60 Hz, 12 V DC out
Voltage	11-16 V DC
Power saving	Automatic shutdown and sleep mode
	(user selectable)
ENVIRONMENTAL SPECIFICATION	
Operating temperature range	-15°C to +45°C
Storage temperature range	-40°C to +70°C
Humidity	Operating and storage 20% to 80%,
	non-condensing
Encapsulation	IP54, IEC 359
Shock	Operational: 25G, IEC 68-2-29
Vibration	Operational: 2G, IEC 68-2-6
PHYSICAL CHARACTERISTICS	
Weight	<800 g, incl. battery (with 25° lens)
Size	272 mm x 80 mm x 105 mm
Tripod Mounting	1/4" - 20
Cover case	Plastic and rubber
INTERFACES	
USB	Image and text transfer to PC
RS-232 cable (optional)	Image and text transfer to PC
Video Output	Standard RCA composite video
THERMACAM E320 INCLUDES:	IR camera, Carrying case, Power supply, Handstrap, Lens cap, ThermaCAM QuickView™ Software, USB cable, User manual, Power cord, Battery (2), Battery charger

FLIR Systems AB
World Wide Thermography Center
Rinkebyvägen 19 - PO Box 3
SE-182 11 Danderyd
Sweden
Tel.: +46 (0)8 753 25 00
Fax: +46 (0)8 753 23 64
e-mail: sales@flir.se
www.flir.com

FLIR Systems Ltd.
United Kingdom
Tel.: +44 (0)1732 220 011
e-mail: sales@flir.uk.com

FLIR Systems Co. Ltd.
Hong Kong
Tel.: +852 27 92 89 55
e-mail: flir@flir.com.hk

FLIR Systems GmbH
Germany
Tel.: +49 (0)69 95 00 900
e-mail: info@flir.de

FLIR Systems Sarl
France
Tel.: +33 (0)1 41 33 97 97
e-mail: info@flir.fr

FLIR Systems S.r.l.
Italy
Tel.: +39 02 99 45 10 01
e-mail: info@flir.it

FLIR Systems AB
Belgium
Tel.: +32 (0)3 287 87 10
e-mail: info@flir.be

WWW.FLIR.COM

KIMO®

Kimo Instrument AB
Stigbergsliden 5
414 63 Göteborg
Tel. 031-13 49 80
Fax. 031-13 80 25
E-post: info@kimo.se
www.kimo.se

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE
©Copyright 2005, FLIR Systems, Inc.
All other brand and product names are trademarks of their respective owners